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United States Department of Agriculture
Bureau of Entomology and Plant Quarantine

A PARASITE REARING TRAY DEVELOPED TO MEET SPECIAL REQUIREMENTS

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This rearing tray was developed at our Central European field station for the large-scale recovery of parasites from the larvae of the pine shoot moth (*Rhyacionia buoliana*). The progressive steps involved in constructing a tray of sufficient size, but lacking tanglefoot barriers, produced a piece of apparatus that has been part of our standard field-laboratory equipment for the past two seasons. The ideas embodied in its construction may be of use to other investigators.

Construction

The complete tray (fig. 1) is composed of two parts, the "tray" proper and the "cover", the structural frames of which are of wood. The bottom of the tray is covered with corrugated paper faced on one side only. The corrugations of the unfaced surface run longitudinally, and they provide an excellent place for the host larvae to web themselves and for the formation of parasite cocoons and puparia (fig. 2). The unbleached cotton covering is held tightly in place by the cover frame (which fits snugly over the top of the tray) much in the same fashion as cloth is held by embroidery hoops. The cloth is loosely placed over the bottom of the cover frame and fastened to the outside edges, so that when the frame is placed over the tray the cloth becomes tautly stretched when the upper edges of the tray and the frame are about flush.

The size of the tray can be varied to suit individual needs. The measurements and details of the tray shown in figure 1 are:

Tray.—Outside length 40 inches; inside width 20 inches; height 5 inches. The thickness of the wood used is five-eighths inch. The corrugated paper bottom was cut slightly smaller than the tray and held in place by heavy wrapping paper strips that were pasted (flour paste) to the bottom of the corrugated paper and the outside and bottom edge of the tray. The use of paste, which avoids damage that would be caused by tacks or nails, allows for the repeated use of the tray over a period of years. To prevent the

¹ Credit should be given to Dr. Walter E. Ripper and Dr. Gernot Bergold, our Austrian field assistants, both of whom assisted in the development of this rearing tray.

insects from entering the ends of the grooves made by the corrugations and the paper used in facing, the ends are moistened with flour paste, flattened together with a hammer, and held in place until dry. (Plastic wood or other suitable material might be used to close these openings.) From 4 to 6 holes 1 inch in diameter were bored in the sides and ends of the tray to allow the workers to introduce the buoliana larvae as they were removed from the pine shoots.

Cover.---Inside measurements of the cover frame are not more than one-eighth inch longer than the outside measurements of the tray; height 2 inches. The thickness of the wood used is about 1 inch (1-inch stock planed down). The corners of this frame were dove-tailed for additional strength. The cloth is fastened with thumb tacks to allow easy adjustment when needed. As an additional precaution to keep the cloth taut, a hook-and-eye fastener was used on each side to hold this frame in place.

The approximate cost of material and construction of the frames is \$1.

As our material was collected just prior to the emergence of the parasites and the host was not supplied with food after removal from the pine shoots, we do not know whether the tray is suitable or practical for prolonged periods of feeding active host larvae. We placed about 1,000 host larvae in a tray of this size.

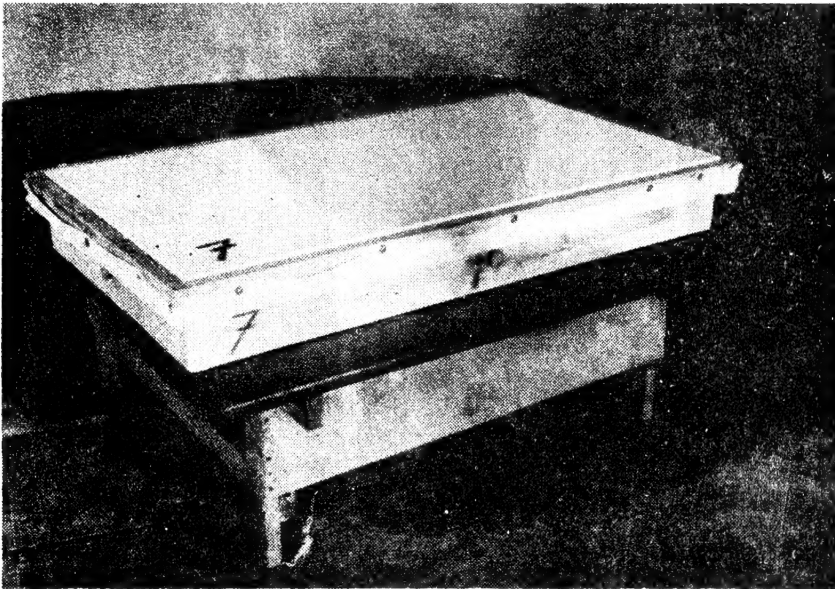


Figure 1.--Rearing tray ready for use.

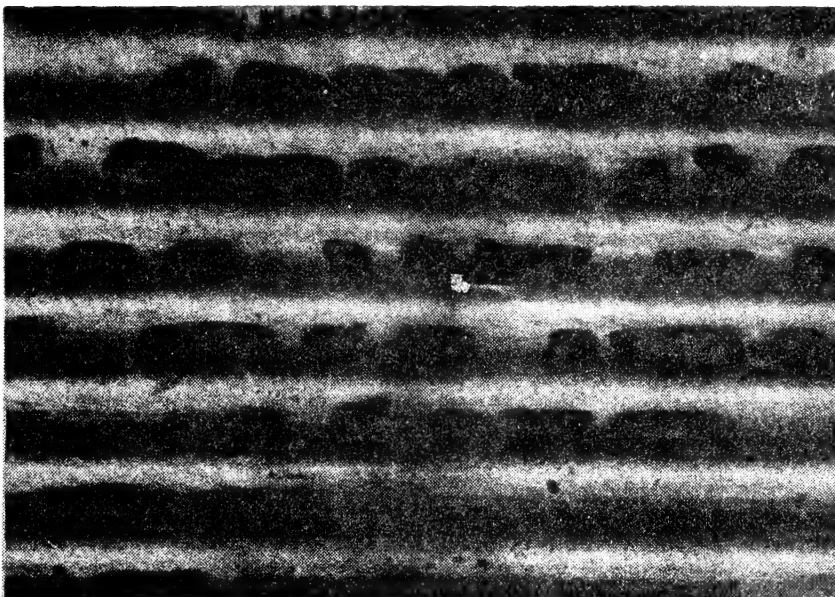


Figure 2.--Host larvae and tachinid puparia lying in the corrugations on the bottom of the tray.

